

are defined in two opposite sidewalls respectively of each first socket 43. Two second sockets 53 are defined at the first end of the cover 5. The second spindles 51 are formed on the first end of the cover 5 adjacent the second sockets 53 respectively. Two holes 57 are defined in two opposite sidewalls respectively of each second socket 53. Each block 54 protrudes from an inner end of its corresponding second spindle 51, under force of the press spring 511 within the second spindle 51. The blocks 54 are aligned along a pivot axis of the foldable radiotelephone, and face each other.

The hinge mechanism comprises two rotation assemblies 1 and the connecting assembly 2. Referring to FIG. 1, each rotation assembly 1 comprises a spring 11, two fixed shafts 12, and two spring casings 13. The spring 11 is a coil spring with a hook 111 at each end thereof. Each spring casing 13 is generally boat-shaped. Each spring casing 13 has a connecting surface 132 interfacing with the connecting surface 132 of the other spring casing 13. A spring hollow 133 is defined in the spring casing 13. Two pairs of transverse slots 131 are defined in sidewalls of the spring casing 13, each pair of slots 131 being near a respective end of the spring casing 13. Each slot 131 is shallow, such that the sidewall at the base of the slot 131 can function as a kind of runner for a corresponding fixed shaft 12. The spring 11 is mounted in a cavity that is cooperatively formed by the spring hollows 133 of the two spring casings 13. Each fixed shaft 12 is received in a corresponding pair of slots 131 of both spring casings 13.

In pre-assembly of each rotation assembly 1, the spring 11 is inserted into the spring hollow 133 of one spring casing 13. The other spring casing 13 is put onto the first spring casing 13 at the connecting surfaces 132 thereof, and the two spring casings 13 are adhered together to form a spring casing assembly. Two spring casing assemblies are thus formed.

Then the press springs 511 are inserted into the holes 513 of the second spindles 51. The blocks 54 are buckled into opposite ends of the through hole of the first spindle 41. The second spindles 51 are thus located in the grooves 44. Next, one of the spring casing assemblies is inserted into one of the first sockets 43 and the corresponding second socket 53. One of the fixed shafts 12 is inserted through the two corresponding holes 47 and a corresponding one of the two hooks 111. The other fixed shaft 12 is inserted through the two corresponding holes 57 and the other corresponding hook 111. The fixed shafts 12 are thereby held in the main housing 4 and cover 5. The other spring casing assembly is attached to the main housing 4 and cover 5 in the same manner as described above. Thus the main housing 4 and the cover 5 are pivotably connected together.

Referring to FIGS. 4 to 6, in use of the hinge mechanism of the foldable radiotelephone, in a starting position, the cover 5 is closed. As shown in FIG. 4, all the fixed shafts 12 are located at respective inmost ends of the runners of the slots 131, and the springs 11 are in a relaxed state and have a normal length. To open the foldable radiotelephone, the cover 5 is manually rotated up relative to the main housing 4 about the pivot axis. The rotation assemblies 1 pivot about the shafts 12 connected to the main housing 4. Top ends of the rotation assemblies 1 adjacent to the cover 5 move away from the main housing 4. Therefore, the springs 11 are stretched and acquire elastic potential energy. Referring to FIG. 5, once the angle between the main housing 4 and the cover 5 is 90°, all the fixed shafts 12 are located at respective outmost ends of the runners of the slots 131, and the springs 11 have reached their maximum lengths and elastic potential energy. When the angle is increased beyond 90°, the cover

5 continues to open automatically due to the elastic rebounding of the springs 11. As shown in FIG. 6, once the cover 5 has reached a fully open position, all the fixed shafts 12 are again located at the respective inmost ends of the runners of the slots 131, and the springs 11 are returned to their relaxed states and normal lengths. The process of closing the cover 5 is substantially the reverse of the above-described opening process.

The number of rotation assemblies 1 applied in the foldable radiotelephone is not limited to two. For example, one or three rotation assemblies 1 may instead be employed. In other embodiments, the spring casings 13 can be other than boat-shaped, and can even be omitted altogether.

It is believed that the present invention and its advantages will be understood from the foregoing description, and it will be apparent that various changes may be made thereto without departing from the spirit and scope of the invention or sacrificing all of its material advantages, the examples hereinbefore described merely being preferred or exemplary embodiments of the invention.

I claim:

1. A hinge mechanism for pivotably joining a cover to a main housing of a foldable radiotelephone, comprising:

a rotation assembly comprising a hollow connecting member, two shafts adapted to pivotably connect opposite ends of the connecting member with the cover and the main housing, and an elastic member received in the connecting member, opposite ends of the elastic member being engaged with the shafts respectively; and

a connecting assembly adapted to pivotably join the cover and the main housing of the foldable radiotelephone, the connecting assembly comprising a first spindle and two second spindles, the first spindle and the second spindles provided on corresponding ends of the main housing and the cover respectively;

wherein at least one of the shafts is slidable along a longitudinal axis of the connecting member; and

when the cover is opened relative to the main housing, the at least one shaft slides along the longitudinal axis in a first direction and stretches the elastic member; and when the cover reaches a predetermined angle relative to the main housing, the elastic member rebounds and drives the at least one shaft to slide along the longitudinal axis in a second direction opposite to the first direction, whereby the cover is automatically further opened relative to the main housing.

2. The hinge mechanism as claimed in claim 1, wherein the elastic member is a spring, and each of the opposite ends of the spring has a hook.

3. The hinge mechanism as claimed in claim 1, wherein the connecting member is formed by two boat-shaped casings attached together, each casing defines one pair of cutouts, and the shafts are received in holes cooperatively formed by the cutouts.

4. The hinge mechanism as claimed in claim 3, wherein the connecting member defines a hollow therein for receiving the elastic member.

5. The hinge mechanism as claimed in claim 1, wherein the connecting assembly further comprises two blocks, the first spindle defines a central axial through hole, each second spindle defines a central axial hole, part of each block is held in the axial hole of a corresponding one of the second spindles, and another part of each block extends into the axial through hole of the first spindle.

6. A foldable electronic device, comprising:

a main housing having a first socket in one end thereof;